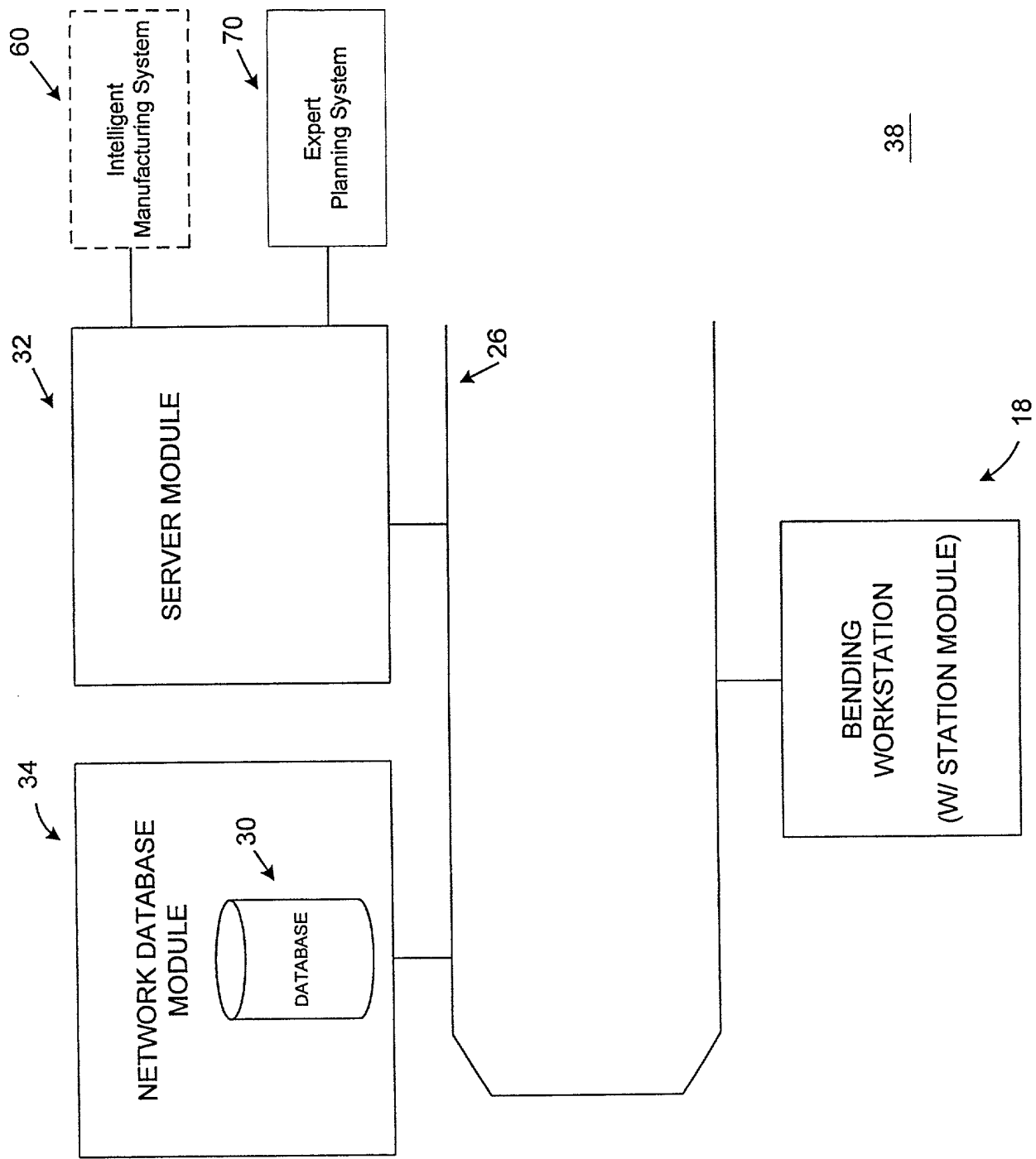


FIG. 1A



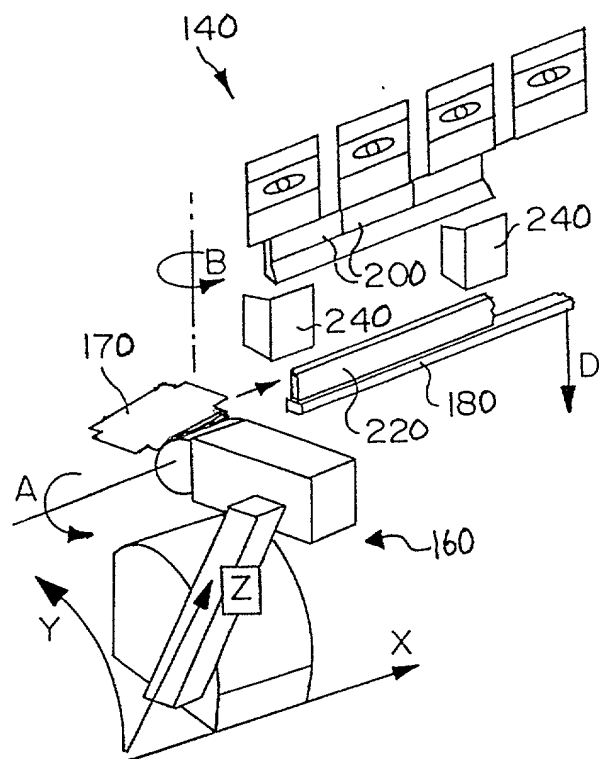
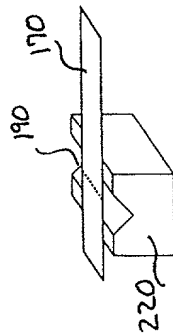
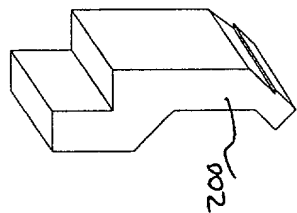
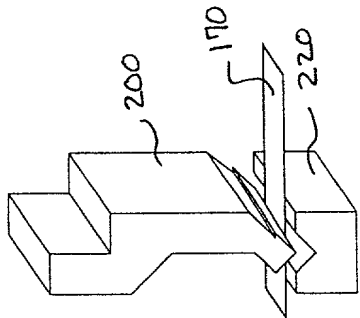


FIG. 2



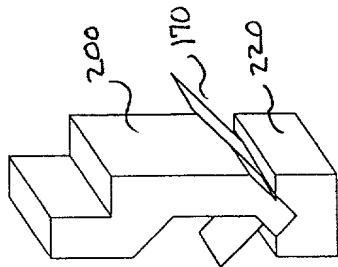
position part on the die

FIG. 3A



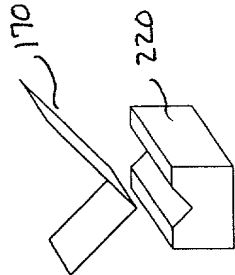
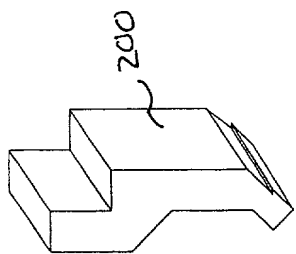
position punch on the part

FIG. 3B



perform bending

FIG. 3C



take out the part

FIG. 3D

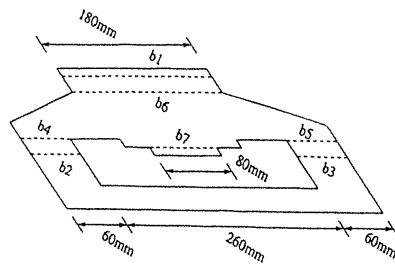


FIG. 4A

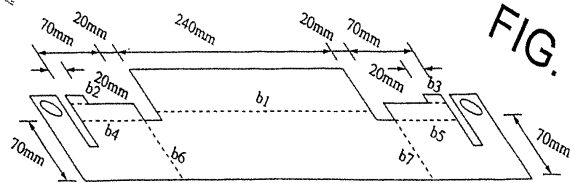
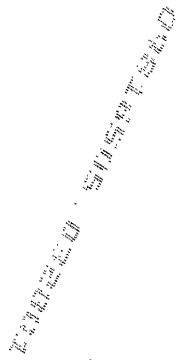
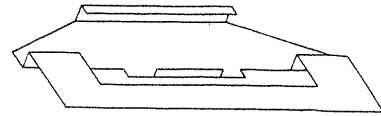


FIG. 4B

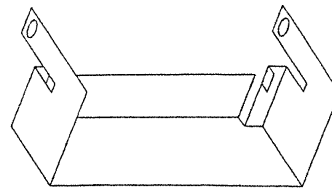


FIG. 4C

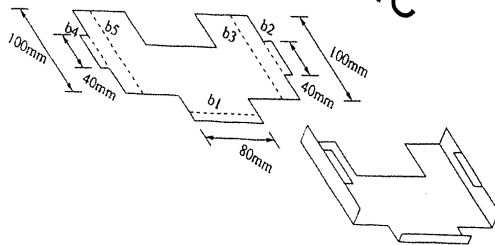


FIG. 5A

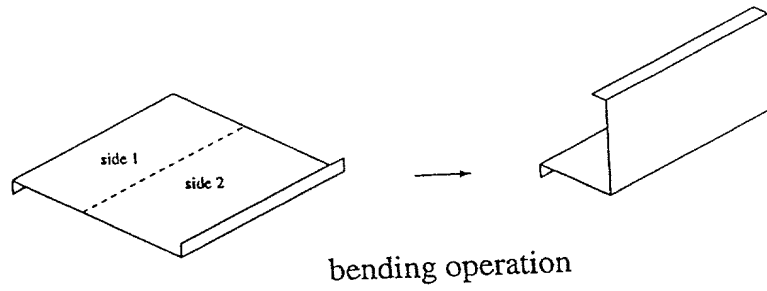


FIG. 5B

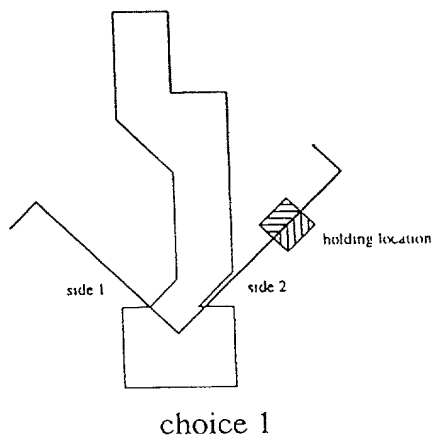


FIG. 5C

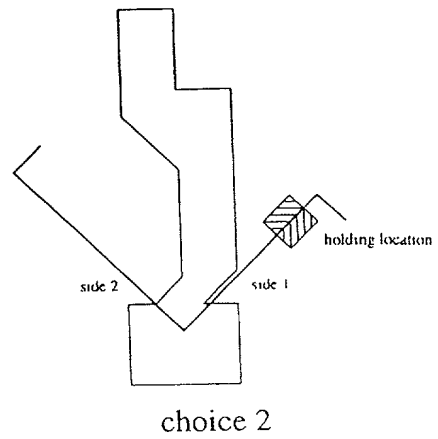
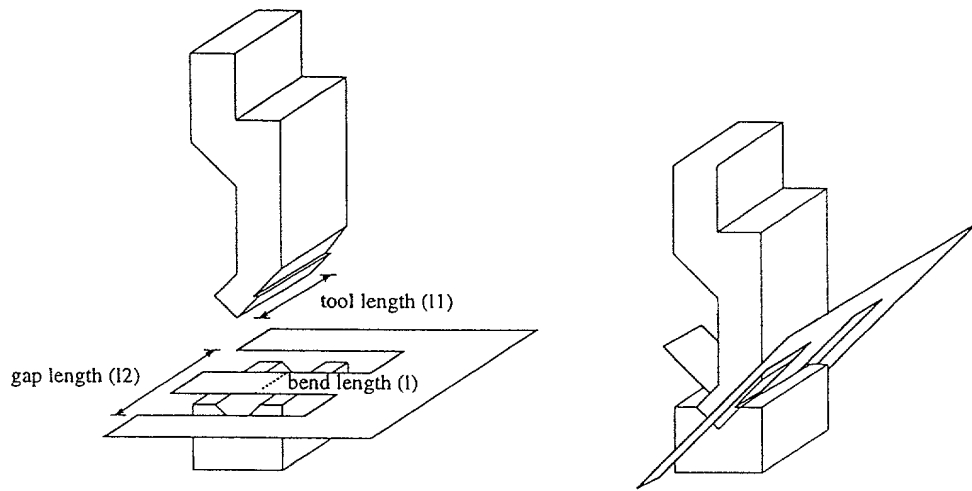
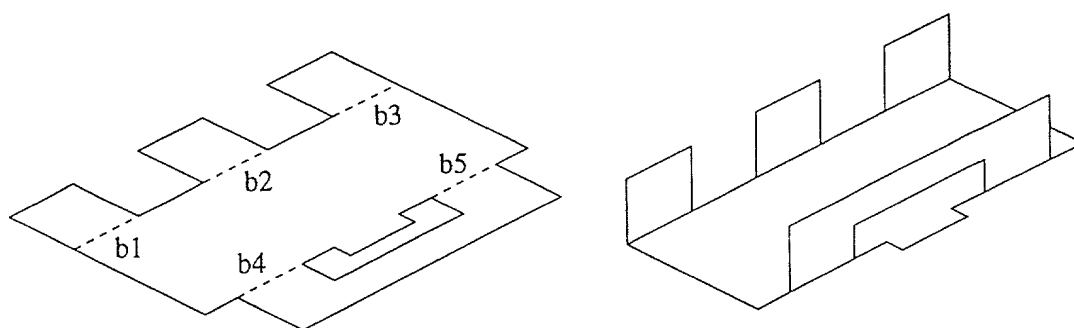


FIG. 6



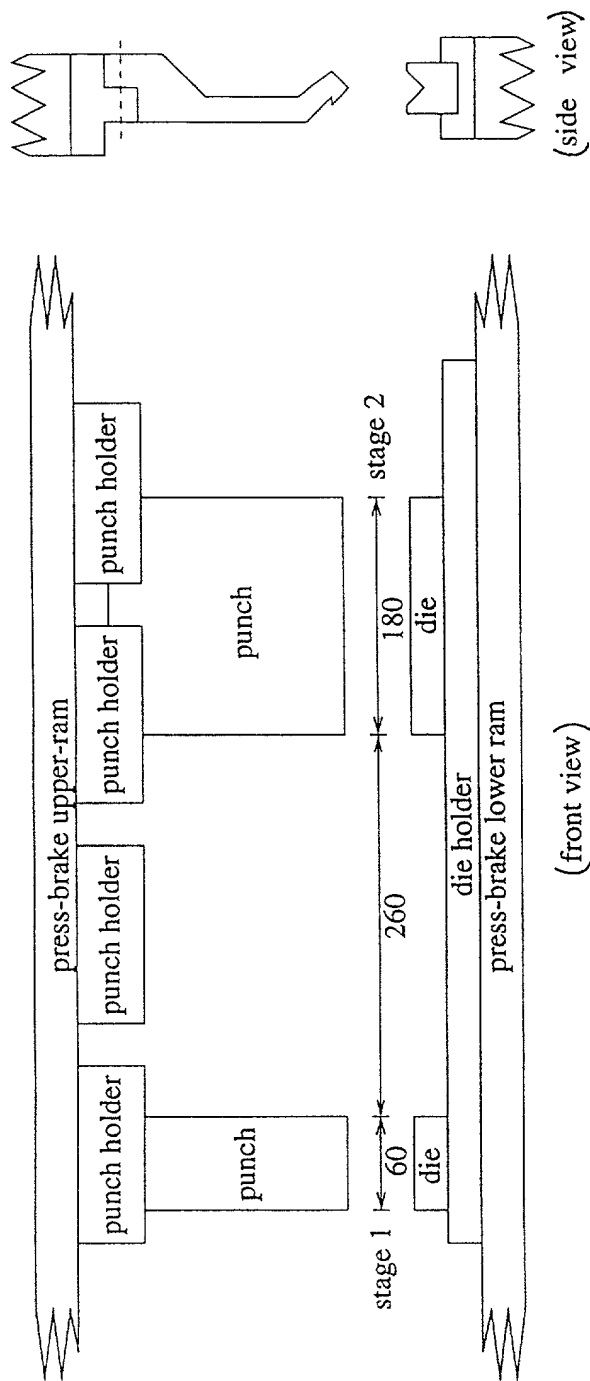
An example of setup constraint

FIG. 7



Colinear bends

FIG. 8



A bending press-brake setup

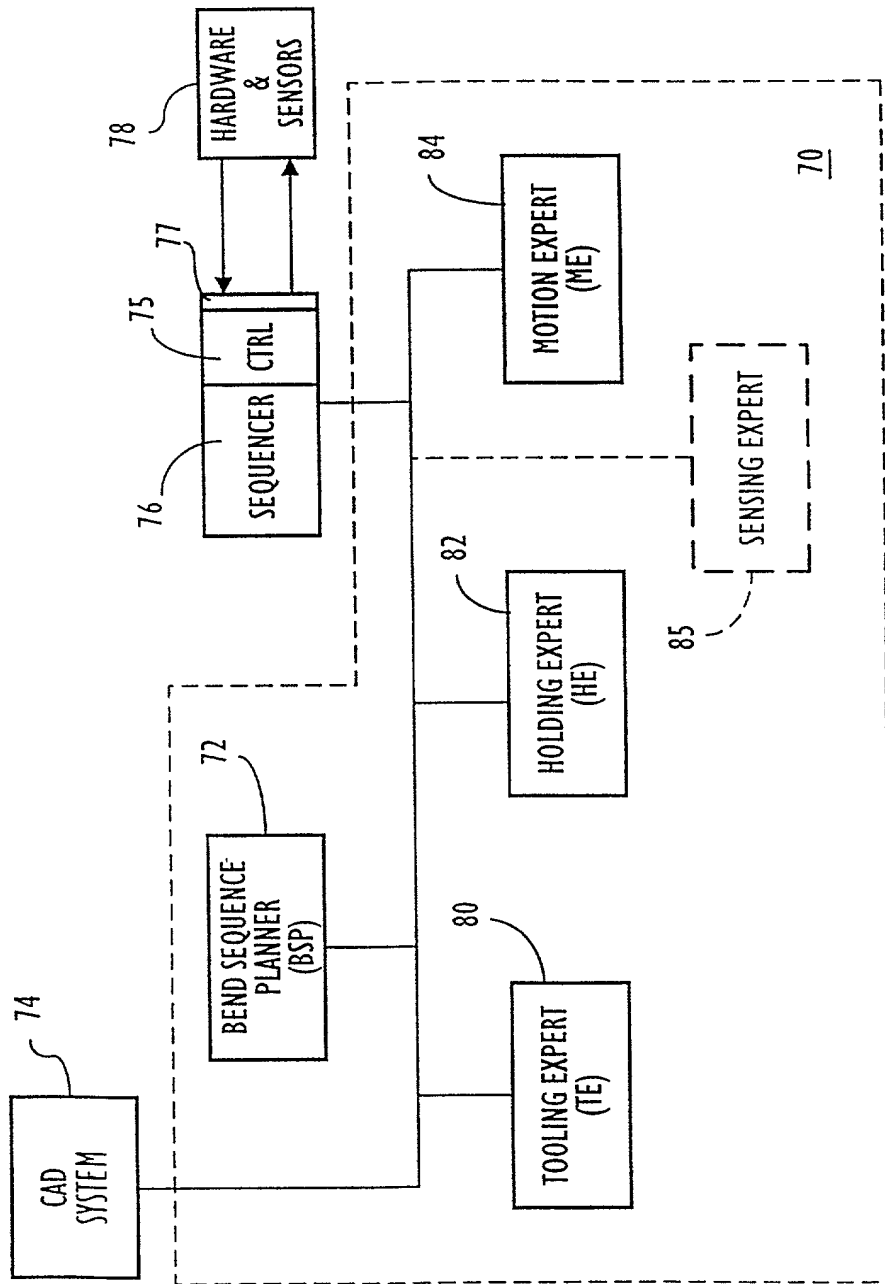


FIG. 9A

FIG. 9B

FIG. 9B

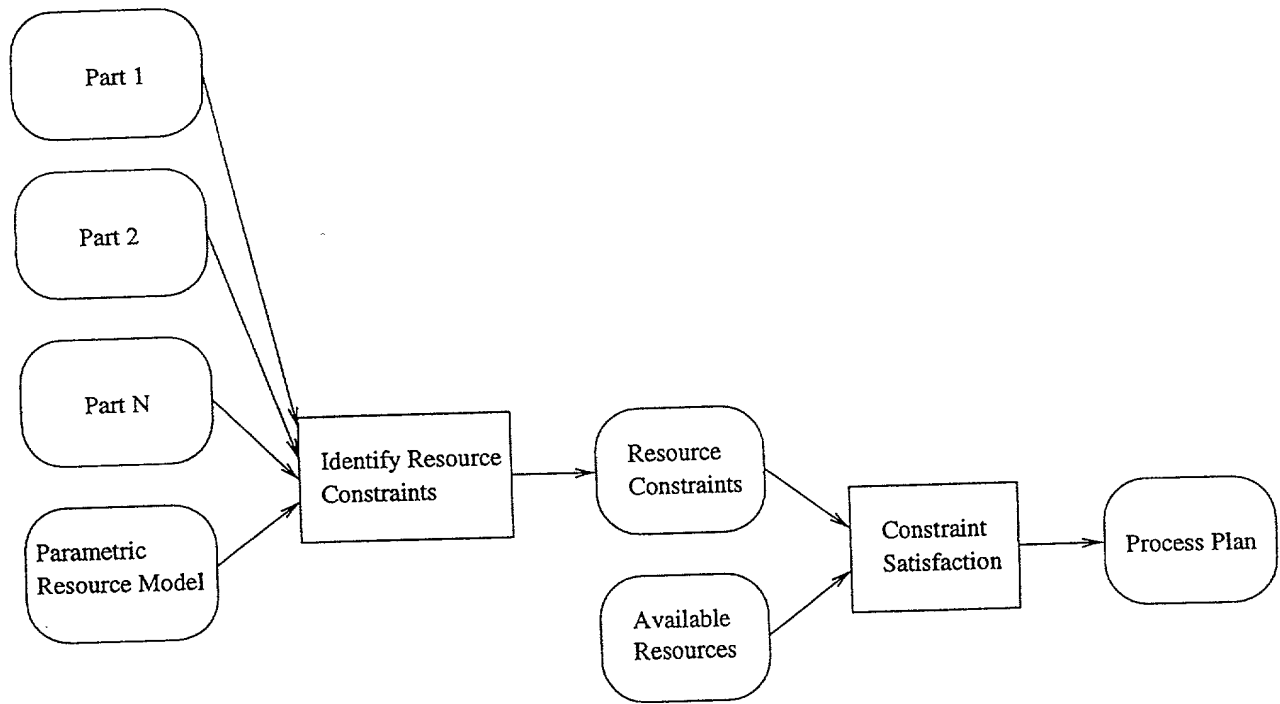
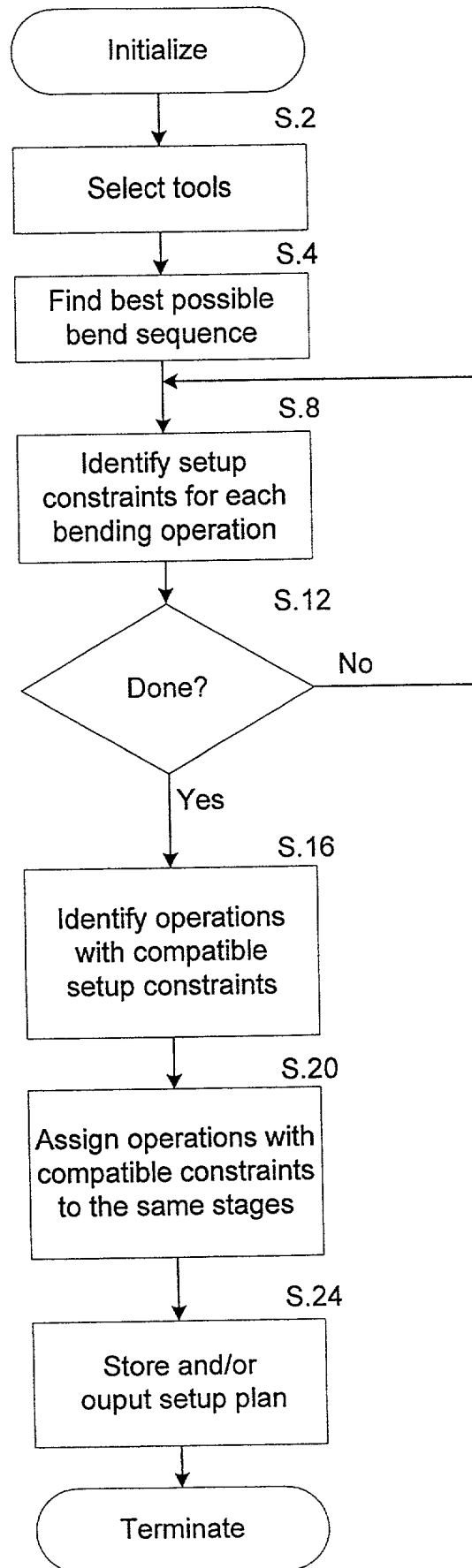


FIG.10



Generating setup constraints

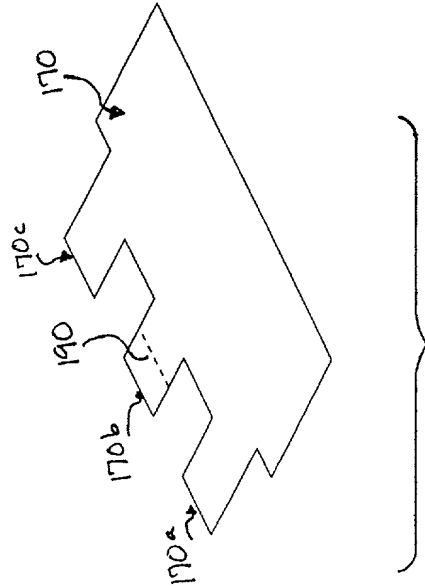


FIG. 11A

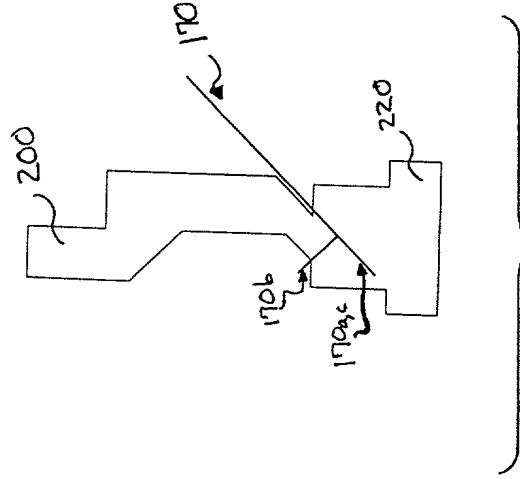


FIG. 11B

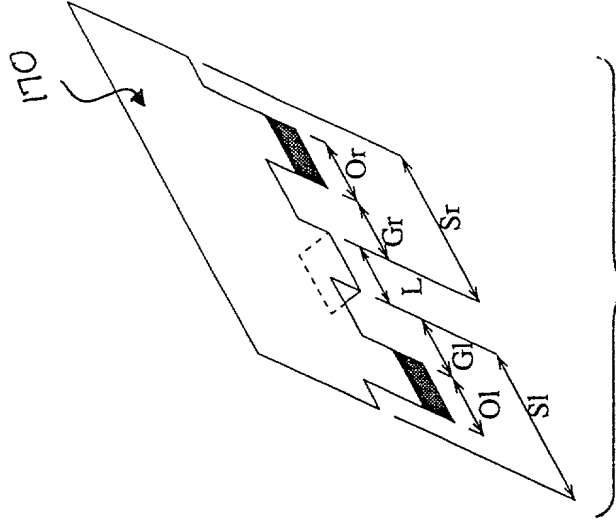
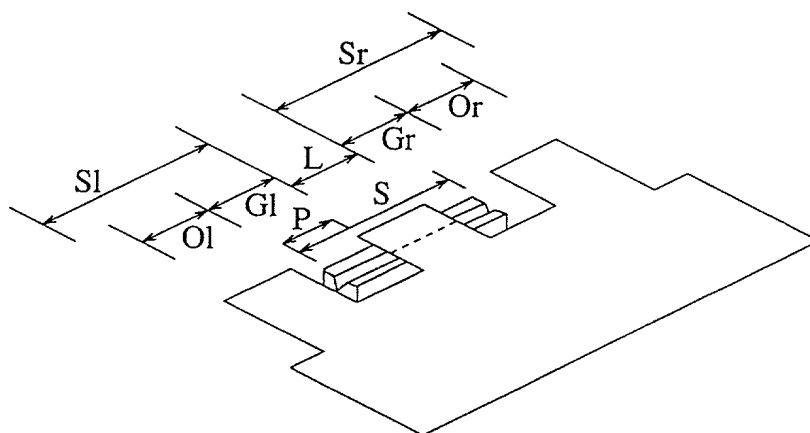


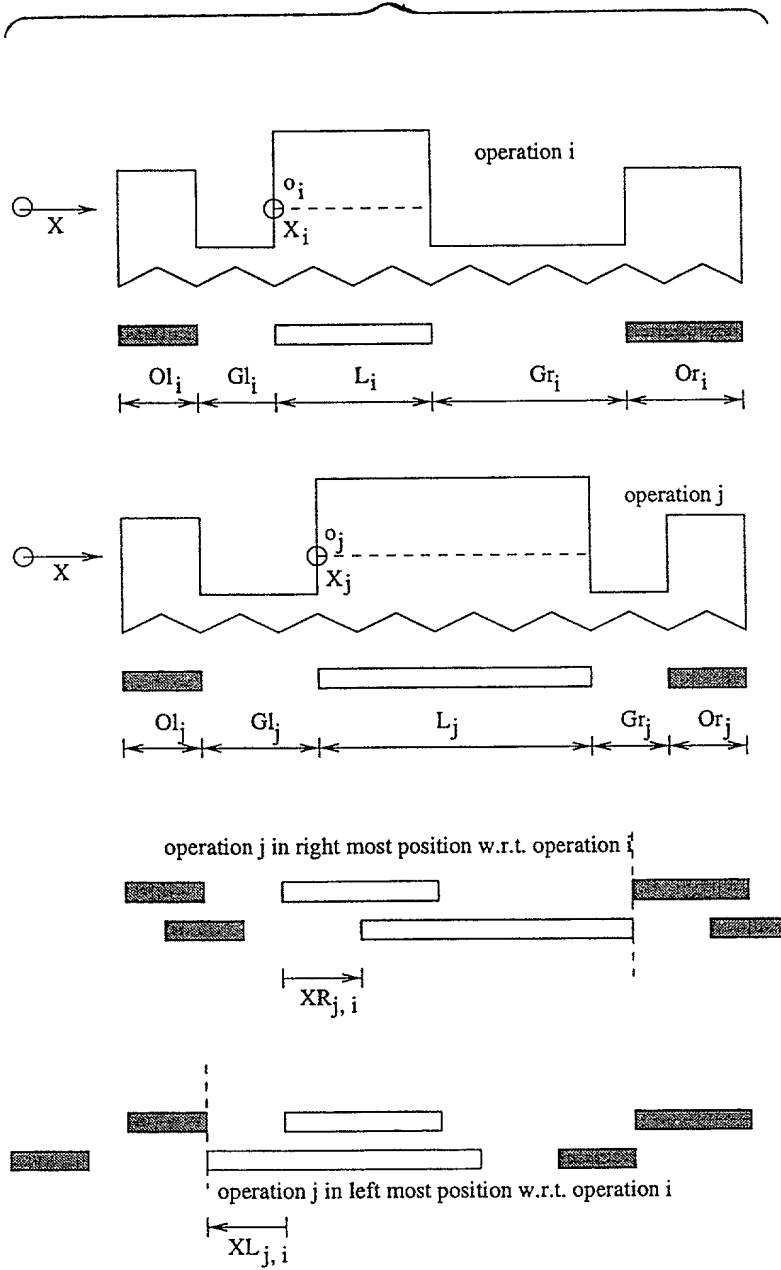
FIG. 11C

FIG. 12



Setup constraint parameters

FIG. 13



Compatibility of setup constraints.

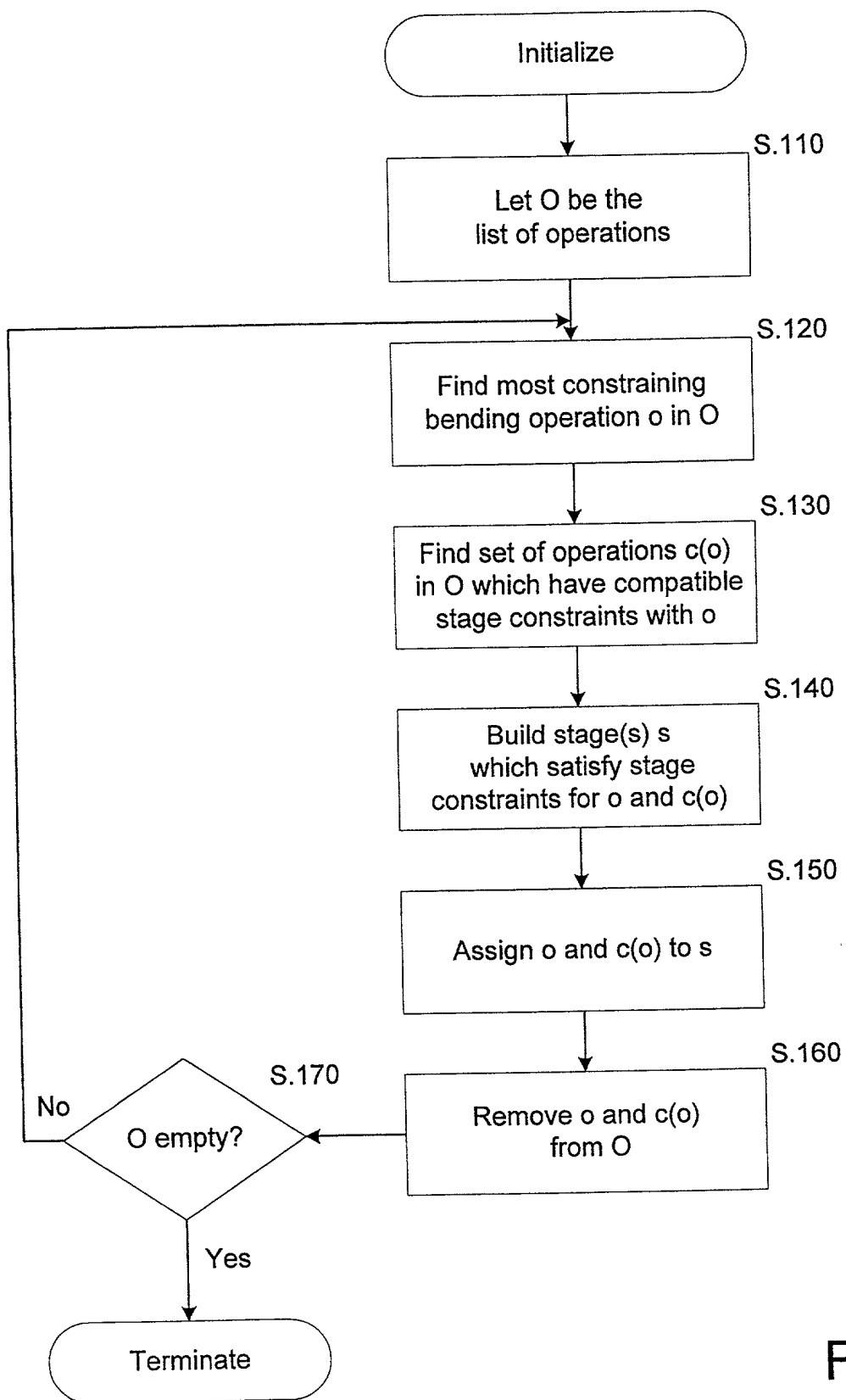


FIG. 14

FIG. 15A (PRIOR ART)

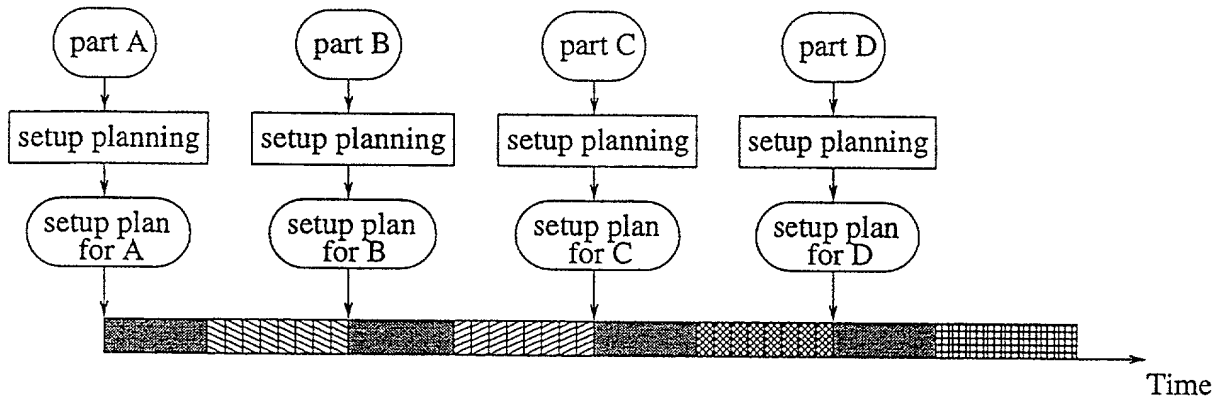


FIG. 15B

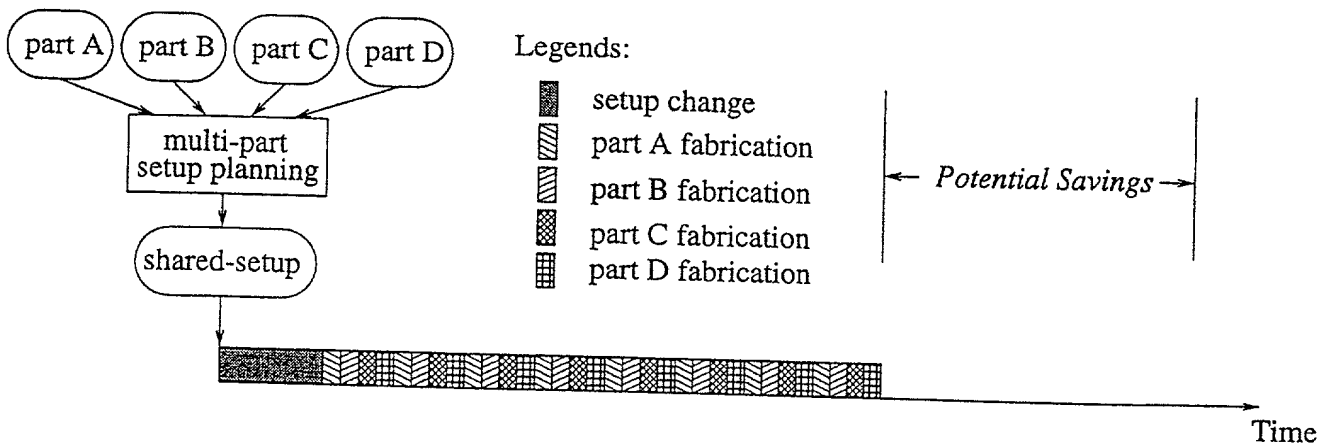


FIG. 16A

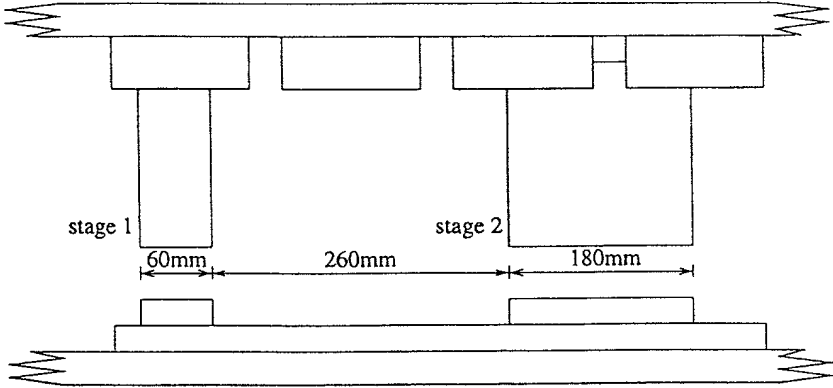


FIG. 16B

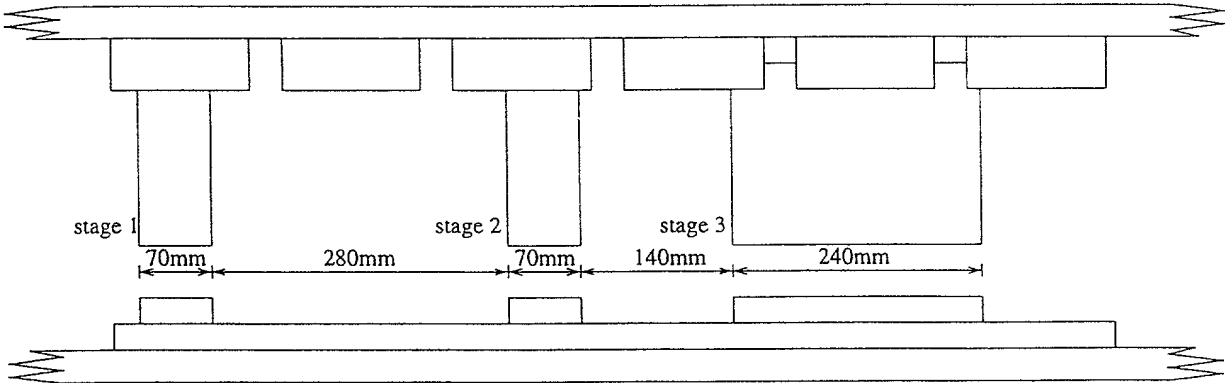


FIG. 16C

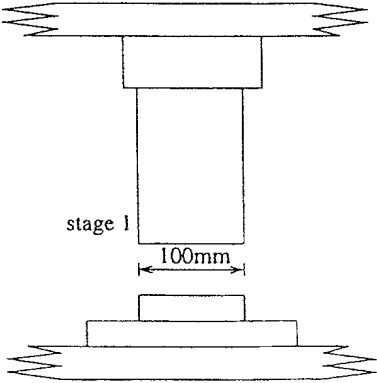
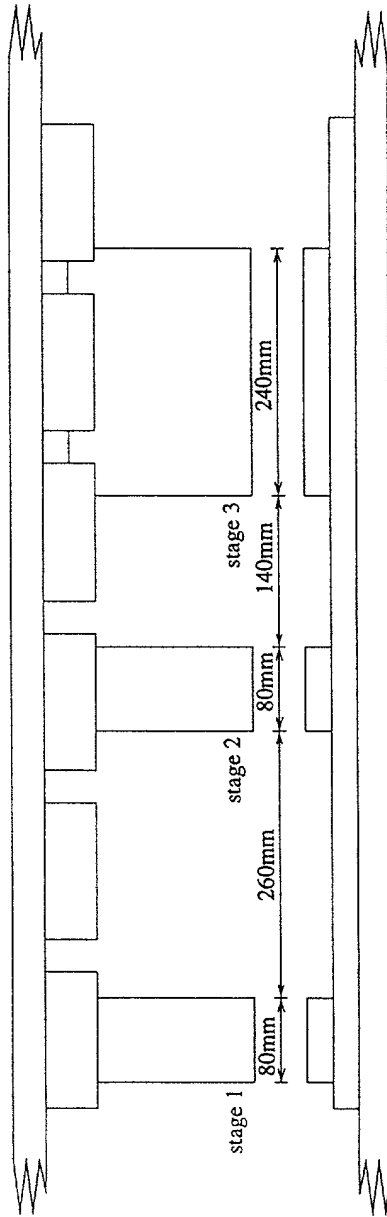


FIG. 17



Composite setup for all three parts